DECLARATION OF STEVEN ELLIS

Redacted Version of Document Sought to be Sealed

HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA OAKLAND DIVISION

CHASOM BROWN, et al., individually and on behalf of all similarly situated,
 	
        Plaintiffs,
 	
        vs.
 	
GOOGLE LLC,
 	
        Defendant.
	Case No. 4:20-cv-03664-YGR-SVK

DECLARATION OF STEVEN ELLIS

1.   I am a Technical Advisor and have been at Google LLC since 2012. Prior to joining Google, I spent more than 20 years in software engineering. I have extensive experience working on embedded networking devices and hold a Bachelors in Computer Science from MIT and a Masters in Computer Science from Stanford University. I make this declaration based on my personal knowledge of source code matters at Google and, if called as a witness, could and would competently testify to the facts contained herein.

2.   As a Technical Advisor, my role is to assist Google Legal teams with technical issues that arise in litigation and related matters. As part of my responsibilities I manage the identification, collection, review, and production of source code for litigation-related matters. I understand that Google is involved in the above-captioned litigation brought by private Plaintiffs.

Mr. Thompson's Proposal For Searching Source Code Is Not Feasible.

3.   I have reviewed the declaration of Plaintiffs' expert witness, Mr. Thompson, in which he opines that "source code analysis related to this case necessarily should have begun with the term 'incognito' as a search term. Even if that initial search generated a large number of 'hits', a conscientious reviewer would review the results, look for patterns, and identify ways to reduce the irrelevant information to improve the quality of the search results."[1]

---

[1] (Dkt. 833-2) ("Thompson Decl.") ¶ 15.

Case No. 4:20-cv-3664-YGR-SVK

DECLARATION OF STEVEN ELLIS

HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY

1   4.   Typically, requests for source code in litigation identify a particular functionality at

2   a specific point in time for which the source code is needed. Here, by contrast, Mr. Thompson's

3   proposal is exceedingly broad and vague. Google's core code base contains more than ███ lines

4   of code and differs by product. What appears to be one functionality externally may have been

5   developed by a large number of internal teams, each of which develops their piece of the

6   functionality independently of each other. The string "incognito" in Google's code base may refer

7   to different functions and products, or simply instruct engineers to use a browser in "incognito"

8   mode to test specific functions unrelated to Chrome or web browsing.

9   5.   Finding source code at Google requires identifying and working with individual

10   engineers who work on the functionality of interest to conduct iterative searches. In my experience,

11   Google does not identify source code relevant to litigation by conducting simple keyword searches

12   of common words because the returned results are too large for an effective investigation. A search

13   for the string "incognito" across Google source code base yields more than ███████ files.[2]

14   Separating relevant from irrelevant results is no trivial exercise. Given that "incognito" can refer to

15   different functions and products and could just be a word that happened to be used in a comment,

16   Mr. Thompson's suggestion requires parsing and manually investigating search results hitting on

17   "incognito" to determine whether any of them lead to a data source that contains responsive

18   information.

19   6.   Source code is often dense, complex, and difficult to understand, even for a trained

20   Google engineer, unless the engineer has expertise in the product at issue. To properly investigate

21   different hits from a keyword search of Google's code base requires, in many cases, conferring with

22   the engineer(s) responsible for the code. This task cannot be delegated to contract reviewers, due to

23   the sensitivity and confidential nature of our code base, and the scarcity of reviewers who would be

24   technically qualified to conduct such a review. I am unable to accurately estimate the time burden,

25   because even identifying which engineer is responsible for each portion of code containing a hit

26   entails an additional manual process, which could take days to weeks of time by itself. I am not

27   aware of any tool available to Google designed to answer a question of this magnitude.

28

---

[2] The results of the "Incognito" search are attached to this declaration as Exhibit A.

HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY

1   **Mr. Thompson's Proposal For Investigating ███ And ███ Protos Is Not Realistic.**

2   7.   In his declaration, Mr. Thompson also opines that Google should have analyzed the

3   ████████████ (" ███ ") and ████████████ proto (███), as well as all of the

4   logs that draw on those protos, in its investigation of the maybe_chrome_incognito field.[3]

5   Mr. Thompson's suggested investigation methodology is unworkable due to the size and complexity

6   of these protos. ███ stands for ████████ and practically all of Google's web services—

7   such as Google ChromeCast, Google Calendar, Google Payments, Android OS—use the ███

8   proto. ███ stands for ████████ and is ████████████ .

9   8.   Log protos, such as ███ and ███ , consist of multiple levels of imported files. To

10   illustrate, on the first level, log alpha may import files A, B, and C. In turn, files A, B, and C may

11   import a second level of files D, E, and F. Files D, E, and F may import a third level of files, and so

12   on. Just the first level of the ███ proto imports ██ files. There are ██ additional imported files

13   at the second level of the ███ proto, and ██ additional files at the third level. For just the first 3

14   levels (there are many more levels of imports) that is more than ███ files and ████ lines.

15   Repeating this same exercise for the ███ proto (again limiting to 3 levels of imports) yields more

16   than ████ lines.[4] This would be an enormous and unmanageable review task.

17   9.   The ███ and ███ protos are used for ████ of logs at Google, and they each

18   may contain ████ or ████ of fields. Reviewing the fields in all of these logs would

19   similarly be a daunting and unmanageable task.

20   10.   Further, to search for how and whether any piece of code has changed over the last

21   several years—as Mr. Thompson's proposed method requires—is exponentially more difficult. In

22   the last five years, there have been more than ██████ changes to Google's core codebase.[5]

23   Considering only the top layer of the ███ and ███ protos—and none of the files these protos

24

25

26   _____

     [3] Thompson Decl. ¶ 15.
27   [4] The script and results approximating imported files in the ███ and ███ protos are attached to
     this declaration as Exhibit B.
28   [5] The results showing code changes in Google's core codebase are attached to this declaration as
     Exhibit C.

HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY

1 import—there have been more than ███████ changes to these files from June 1, 2020 to Nov 29,

2 2022.[6]

3   11.   In my eleven years of experience, reviewing the magnitude of code suggested by

4 Mr. Thompson is unprecedented at Google in response to any litigation request.

6   I declare under penalty of perjury that the foregoing is true and correct.

7   Executed on the 9th day of February, 2023 at Mountain View, California.

By:
DocuSigned by:
Steven Ellis
C0B0E53B0000472...
Steven Ellis

---

28 [6] The results showing code changes to ████ and █████ protos are attached to this declaration as Exhibit D.